

LITERATURE CITED

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TROPICAL DISTURBANCES, AUGUST 1936

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[Weather Bureau, Washington, September 1936]

Five tropical disturbances of the West Indian type occurred in the North Atlantic Ocean during August 1936. The earliest, that of the 9th-12th, which was of very slight intensity, was confined to the western Gulf of Mexico. The second, that of the 15th-19th, crossed the southern half of the Gulf, and locally developed some intensity during its westward passage. The third, that of the 20th-22d, originated east of the Bahamas, crossed northern Florida and thence, skirting the extreme northeastern Gulf coast, was of slight to moderate force only. The fourth disturbance, that of the 28th-30th, crossed the extreme lower portion of the Gulf, and was locally of considerable force on the 30th. Coincident with the final Gulf depression, reports were received on the 28th of a disturbance forming near 15° N., 45° W. This disturbance moved northwestward with rapid development. On the 31st, near 24° N., 56° W., winds of near hurricane force occurred. The storm thereafter moved into higher latitudes and on September 6-7 crossed the British Isles. A full description of this storm will appear in the September issue of the REVIEW.

Two tropical cyclones occurred off the west coast of Mexico this month. They are described on pp. 277-278.

The approximate tracks and positions of the centers of four disturbances are given in figure 1.

Disturbance of August 9-12.—The first definite signs of development of a cyclonic circulation, with light winds, appeared in the 7 p. m. ship reports of August 8 about 200 miles west-southwest of Port Eads. During the 9th the winds became somewhat more vigorous with forces of 4-5 (Beaufort scale), except that in one instance a moderate gale (force 7) from east occurred. This was radioed to the forecast centers by the S. S. *E. R. Kemp* (barometer 29.90) in 28.8° N., 92.1° W., and was the highest velocity reported during the life of the depression.

At 7 p. m. (e. s. t.) of the 9th the center of the disturbance was located near 28° N., 92° W., moving slowly in a westerly direction, accompanied by moderate to fresh winds. The center, with little apparent depression of the barometer, continued to move westward until the morning observation of the 10th, at which time it was located near $27\frac{1}{2}^{\circ}$ N., 94° W. Thereafter, the course of the depression was south-southwest to southwest, unaccompanied by winds of known gale force, until, on the 12th, it entered the Mexican coast north of Tampico.

Beginning late on the 9th, and continuing until afternoon of the 12th, all interests were advised of the progress of the disturbance by advisories or bulletins issued at 6-hour intervals from the forecast center at New Orleans. Orders to hoist small craft warnings from Galveston to Corpus Christi were issued on August 10 at 3 a. m. (e. s. t.).

Disturbance of August 15-19.—This disturbance appears to have originated over the extreme northwestern part of the Caribbean Sea on the 14th, but available reports during the day showed only gentle winds and little depression

of the barometer. On the 15th the disturbed condition had moved northwestward, and at 6 p. m. local time was centered in approximately 23° N., 88° W. A report received subsequently by mail showed that at this time the S. S. *Cauto*, Tampico to Baltimore, $23^{\circ}40'$ N., $88^{\circ}35'$ W., experienced a north wind, force 5, barometer 29.73; at 6.50 p. m. (local time) the wind, of same force, had hauled to east, pressure 29.56. At 8 p. m., with rising barometer, the ship reported a southeast gale, force 9, thereafter diminishing.

The northwestward movement of the disturbance continued until the morning of the 16th with no increase in intensity so far as reports indicate. The highest wind during the day, according to mail reports, was of force 8, ESE., during squalls experienced by the S. S. *San Benito*

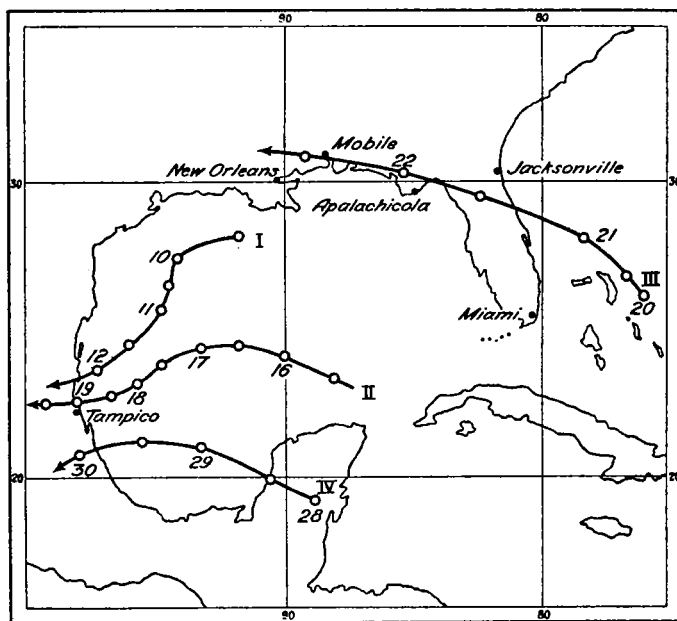


FIGURE 1.—Approximate tracks of tropical disturbances, August 1936.

between 4 and 7 a. m. (local time) near $24\frac{1}{2}^{\circ}$ N., 90° W., lowest barometer 29.83.

The cyclone center, moving westward, was in approximately 24° N., 93° W., at 7 a. m. of the 17th, with winds of force 4-5 reported by ships at a considerable distance from the center. During the day the disturbance changed its course to southwesterly and at 7 p. m. (e. s. t.) was centered near $23\frac{1}{2}^{\circ}$ N., 95° W. At this time the highest wind reported in connection with the disturbance was force 6, south, observed on the S. S. *Agwistar*, near 23° N., $94\frac{1}{2}^{\circ}$ W.

The center continued to move southwestward until 7 a. m. of the 18th, at which time it was near 23° N., 96° W., and so far as reports indicate had meanwhile gathered energy. At this time the S. S. *San Ambrosia*, near

23° N., 95° W., had a south-southeast wind of force 8, attended by rain squalls of hurricane force, barometer 29.73; while the S. S. *Agwistar*, near 22½° N., 96½° W., had a west wind of force 7, barometer 29.62.

Thereafter the center moved toward west-southwest, then west, and passed inland a short distance north of Tampico on the morning of the 19th, accompanied by heavy rains. Quoting from the report of W. R. Stevens, forecaster on duty at New Orleans:

It is likely that the disturbance did not reach hurricane intensity although gusts and squalls of hurricane force probably occurred near the center. The highest velocity reported at Tampico was southwest 30 m. p. h. at 9 and 10 a. m., with lowest pressure 29.52 inches at 9 a. m. August 19.

From the morning of the 17th until the morning of the 19th, when the depression passed inland, frequent advisory messages and bulletins from the forecast center at New Orleans apprised all marine and other interests of the movements of the disturbance. On the morning of the 17th northeast storm warnings were ordered up from Brownsville to Corpus Christi, Tex., and southeast storm warnings northward from Corpus Christi to Matagorda.

Disturbance of August 20-22.—On the morning of August 20, slightly falling pressure, with cyclonic circulation, over and northeast of the northern Bahama Islands was evident on the weather map. By 7 p. m. (e. s. t.), although no low center could yet be located, a more vigorous cyclonic circulation was established over the region between approximately 25°-30° N., 75°-80° W., with ships' reports showing wind-forces of 4-6, on the Beaufort scale.

At 7 a. m. of the 21st, observations from a number of ships showed the development of a small cyclone center close to 28° N., 78° W., with accompaniment of fresh to strong winds, highest force 6, with lowest barometer 29.71 inches.

Quoting from the report of Grady Norton, forecaster on duty at Jacksonville, Fla.:

The center passed inland between Titusville and Daytona Beach, Fla., at about 5 p. m. of August 21. The barometer fell to 29.60 inches at Titusville, with winds from west and southwest 40 to 55 miles per hour as the center passed. Squalls of about 30 miles per hour occurred northward beyond Jacksonville along the coast, but at Jacksonville, which is about 18 miles inland, the highest wind was only 25 miles per hour (extreme 27). All warnings were lowered at 8:30 p. m. when the disturbance was over the interior of northern Florida diminishing in intensity.

No appreciable damage was caused by the storm according to early reports, and no loss of life occurred. The copious rains attending the disturbance were very beneficial to citrus and other late crops, and winds were not strong enough to cause any injury to fruit after reaching inland to the citrus regions.

The remnants of the disturbance persisted and crossed the northern part of the State and were in the vicinity of Apalachicola at 8 a. m. of August 22, but no strong winds occurred on the west coast of this district.

Frequent and ample advisory messages and cautionary warnings to small craft in connection with this disturbance were issued from the Jacksonville forecast center. Northeast storm warnings at 9:30 a. m. (e. s. t.) of the 21st were ordered hoisted from Fort Pierce, Fla., to Charleston, S. C.

Disturbance of August 28-30.—At the morning observation of August 28, conditions over the Yucatan Peninsula pointed toward the formation of a slight depression, with lowest barometer, 29.74, at Payo Obispo. At 7 p. m. of that date the suspicion was strengthened that a tropical disturbance was originating in the vicinity. Pressure at Merida had fallen to 29.63 inches, which indicated a northwestward movement of the depression.

On the morning of the 29th, reports from ship and Mexican coast stations indicated the formation of a circulatory wind system with center in the Gulf of Campeche. The S. S. *Ceiba*, near 20° N., 92° W., at 7 a. m. reported the lowest barometer, 29.70, with south wind of force 6. At 7 p. m. (e. s. t.) of the 29th four ships in the southwestern Gulf, within the region 20°-23° N., 92°-95° W., clearly showed the existence of a moderate depression with center a little north of the 20th parallel and close to the 95th meridian. Three of the ships, at some distance from the center reported wind forces of 5-6, while the S. S. *Amapala* in 19.8° N., 94.8° W., had a moderate west gale (force 7), pressure 29.53 inches. The extreme wind reported by the *Amapala* was of force 8, south, at 8 p. m., local time, of the 29th. During the morning of the 30th the disturbance became locally of much increased energy, as indicated by a report received by mail from the S. S. *Cayo Mambi*. This ship, in 21°40' N., 97°00' W., had a barometer reading of 29.52 inches, accompanied by a southeast gale of force 9. The maximum wind reported by the ship was from the east, force 11. The disturbance passed inland near Tuxpam on the morning of the 30th.

Advisories and cautionary warnings were issued from New Orleans during the 29th and on the morning of the 30th.

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[RICHMOND T. ZOCH, in Charge of Library]

By AMY D. PUTNAM

RECENT ADDITIONS

The following have been selected from among the titles of books recently received as representing those most likely to be useful to Weather Bureau officials in their meteorological work and studies:

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Gli strumenti di meteorologia ed aerologia. Descrizione e impiego. Roma. 1936-XIV. 426 p. illus., figs. 28 cm.

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